AMENDMENTS TO THE SPECIFICATION:

Please delete the heading beginning at page 1, line 1, which starts with:

MESSAGE ADDRESSING

Please amend the paragraph beginning at page 1, line 5, as follows:

The ~~present invention~~ technology described herein relates in general to handling of messages, particularly short message service (SMS) messages in mobile communications networks, and in particular to finding the appropriate terminating address of a SMS message.

Please amend the paragraph beginning at page 3, line 4, as follows:

A general object ~~of the present invention~~ is therefore to provide methods, devices and systems in which also hardware associated identifications can be used as addressing data when sending messages. A further object ~~of the present invention~~ is to provide such methods, devices and systems that ~~requires as~~ require only small changes ~~as possible~~ in present standardised systems.

Please amend the paragraph beginning at page 3, line 10, as follows:

The objects mentioned above are achieved by methods, devices and systems according to the enclosed patent claims. ~~In general words, a~~ A message, ~~typically~~ e.g., a SMS message, intended for a specific hardware item is provided from an application node to a message controller together with hardware identification data, e.g., IMSI or IMEISV, specifying the intended terminating hardware. The message controller and a location updated subscriber database, e.g., ~~a~~ an HLR, having stored information about the intended terminating hardware, ~~interacts and a~~ interact. ~~further~~ Further handling of the message is decided based on the provided hardware

identification data and on data stored in the location updated subscriber database. Preferably, the

further handling is based on a comparison between hardware identification data stored in the

location updated subscriber database and the provided hardware identification data. In one

embodiment, the hardware identification data is provided to the location updated subscriber

database, in which a comparison is made with the stored data, resulting in the retrieval of IMSI

and a relevant switching or support node address of the hardware. In another embodiment, the

application node also provides the subscriber identity, e.g. the MSISDN, to the message

controller. The message controller interacts with the location updated subscriber database to

achieve hardware identification data (e.g IMSI and/or IMEISV) from the location updated

subscriber database. If the hardware identification data provided by the application node, at a

comparison made at the message controller, corresponds to the hardware data achieved from the

location updated subscriber database, the message is transmitted to the switching or support node

address also achieved from the location updated subscriber database. Otherwise error

functionalities are applied.

Please amend the paragraph beginning at page 4, line 4, as follows:

An advantage with the ~~present invention~~ technology described herein is that any indefiniteness in

addressing hardware intended as terminating items of a message is removed. Another advantage

~~of the present invention~~ is that only a ~~very~~ limited amount of ~~changes~~ change in present

standards has to be performed.

Please delete the paragraph beginning at page 4, line 1, which starts with:

The invention, together...

Please amend the paragraph beginning at page 4, line 18, as follows:

FIG. 3 is a schematic block diagram of an example embodiment of a message controller ~~according to the present invention~~ and its surrounding units;

Please amend the paragraph beginning at page 4, line 20, as follows:

FIG. 4 is a schematic block diagram of example embodiments of a message controller and a HLR ~~according to the present invention~~;

Please amend the paragraph beginning at page 4, line 22, as follows:

FIG. 5 is a schematic block diagram of other example embodiments of a message controller and a HLR ~~according to the present invention~~;

Please amend the paragraph beginning at page 4, line 24, as follows:

FIG. 6 is a flow diagram of the main steps of an example embodiment of a method ~~according to the present invention~~; and

Please amend the paragraph beginning at page 4, line 26, as follows:

FIG. 7 is a flow diagram of the main steps of another example embodiment of a method ~~according to the present invention~~.

Please amend the paragraph beginning at page 5, line 4, as follows:

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~~In order to better understand the present invention, first a~~ A short overview of a prior~~[[ ]]art~~ communications system supporting SMS is illustrated and ~~discussed~~ described.

Please amend the paragraph beginning at page 9, line 27, as follows:

~~The general solution of the present invention comprises the addition of~~ Added parameters of the interface 56 protocol ~~controlling~~ control the communication between the application node 70:1, 70:2, 70:3 and the SMS controller 40. These parameters comprise hardware identification data, typically at least one of subscriber identification module identification data (IMSI) and mobile equipment identification data (IMEI or IMEISV).

Please amend the paragraph beginning at page 10, line 1, as follows:

Fig. 3 illustrates an embodiment of a SMS controller 40 ~~according to the present invention~~ together with parts of the surrounding communications system. An SMS message and an associated MSISDN number MSISDNx are sent from an application node 70 to the SMS controller over the connection 58. According to this embodiment ~~of the present invention~~, in addition to this data, also associated IMSI data IMSIx is attached. When the SMS GMSC 46 interrogates the HLR 50 with a message requesting routing information for the SMS, the MSISDNx data is used as identification. The returned IMSI data IMSIy (and also MSC address data) corresponds to the SIM card that is the "active" receiver of calls and SMS's according to the databases of the HLR 50. The SMS GMSC 46 compares in a comparator 45 the IMSIy data from the HLR 50 and the IMSIx data received by the connection 43 to verify that they are the same. If they indeed are the same, implicitly, the MSC address is also the MSC address associated with IMSIx and provided by the connection 47 to join the SMS message provided by

41. The SMS send procedure then continues as normal, by initiating a transmission of the SMS. The data provided on the connection 76 then comprises the SMS message, the MSC address and the IMSIx data.

Please amend the paragraph beginning at page 10, line 30, as follows:

In accordance with the embodiment of Fig. 3, with a simple update of the SMPP protocol, or other protocol controlling the communication between the application node and the SMS controller, i.e. the interface 56, the information from the ~~HRL~~ HLR can be used to verify that the correct terminal or SIM card is addressed. No changes in the present standardised protocols for the interface 54 between the SMS controller 40 and the HLR 50 have to be performed.

Please amend the paragraph beginning at page 11, line 5, as follows:

However, if further changes are performed also at the interface 54, further advantages can be reached. Fig. 4 illustrates another embodiment of a SMS controller ~~according to the present invention~~. An SMS message is sent from an application node 70 to the SMS controller over the connection 58. The MSISDN number can also optionally be provided. According to this embodiment of the present invention, in addition to this data, also associated IMSI data IMSIx is attached. According to this embodiment, the SMS GMSC 46 interrogates the HLR 50 with a message according to a modified standard. Here routing information for the SMS is requested based on the IMSIx data 81 used as identification. In the return, MSC address data MSCx 79 corresponds to the SIM card having the identity of IMSIx is provided, regardless of if the SIM card is marked as active or not. This is provided according to information stored in the databases of the HLR 50. The SMS GMSC 46 adds the MSCx address to the message and IMSIx data. The

SMS send procedure then continues as normal, by initiating a transmission of the SMS. The data provided on the connection 76 then comprises the SMS message, the MSCx address and the IMSIx data.

Please amend the paragraph beginning at page 11, line 29, as follows:

Fig. 5 illustrates yet another embodiment of a SMS controller ~~according to the present invention~~. A SMS message is sent from an application node 70 to the SMS controller over the connection 58, together with the MSISDN number MSISDNx. According to this embodiment ~~of the present invention~~, in addition to this data, also associated IMEI data IMEIx is attached. According to this embodiment, the SMS GMSC 46 interrogates the HLR 50 with a message comprising the MSISDNx 80. In the return, MSC address data MSCy 79 corresponds to the terminal being associated as active in relation to the MSISDNx. Also, the corresponding IMSIy and IMEIy are provided to the SMS GMSC 46. The SMS GMSC 46 compares in a comparator 45 the IMEIy data from the HLR 50 and the IMEIx data received by the connection 43 to verify that they are the same. If they indeed are the same, the MSC address MSCy is the same as MSCx, the IMSIy is the same as IMSIx, and are provided by the connection 47 to join the SMS message provided by 41. The SMS send procedure then continues as normal, by initiating a transmission of the SMS. The data provided on the connection 76 then comprises the SMS message, the MSCx address and the IMSIx data.

Please amend the paragraph beginning at page 13, line 9, as follows:

In the present disclosure, SMS is used as an example message system. The ~~present invention~~ <u>technology described herein</u> can, however, also be applied to other message systems, e.g.

Unstructured Supplementary Service Data (USSD). Likewise, an SMS controller is used as a

model of a general message controller. In the described embodiments, a location updated

subscription database is exemplified by a HLR. However, other subscriber databases having

updated location data, such as e.g. Home Subscriber Servers (HSS), can also be utilised. The

address received from the location updated subscription database refers to a switching or support

node, which in the described embodiment is exemplified by a MSC. However, other types of

switching or support nodes, such as a SGSN in GPRS or 3G systems can also be addressed.

Please amend the paragraph beginning at page 13, line 22, as follows:

Furthermore, in the embodiments above IMEISV has been used for referring to the hardware

identity of the mobile terminal. Since IMEISV comprises the IMEI and an extension defining the

actual software version, any messages addressed to the mobile terminal that is-are independent

on the software version can equally well be addressed by only the IMEI. In other words, both

IMEI and IMEISV may serve as references to the mobile terminal hardware.

Please amend the paragraph beginning at page 13, line 29, as follows:

Fig. 6 illustrates a flow diagram of the main steps of an embodiment of a method according to

the present invention. The procedure starts in step 200. In step 210, a message and hardware

identification data is transferred from an application node to a message controller. An interaction

step 212 between the message controller and a location updated terminal database, typically an

HLR, comprises in the present embodiment three part steps 214, 216 and 218. In step 214, the

hardware identification data is sent to the HLR as a part of an interrogation for a switching or

supporting node address. In step 216, the HLR retrieves the address that corresponds to the

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hardware identification data, and in step 218, this address data is returned to the message

controller. A step 220 of further managing of the message comprises in this embodiment the step

224 of initiating of the transmission of the message according to the address received from the

HLR. The procedure ends in step 299.

Please amend the paragraph beginning at page 14, line 11, as follows:

Fig. 7 illustrates a flow diagram of the main steps of another embodiment of a method ~~according~~

~~to the present invention~~. The procedure starts in step 200. In step 210, a message and (first)

hardware identification data is transferred from an application node to a message controller. The

terminating subscriber identification number is transferred in step 211, together with the message

or separately. An interaction step 212 between the message controller and a location updated

terminal database, typically an HLR, comprises in the present embodiment three part steps 213,

215 and 217. In step 213, the subscriber identification number is sent to the HLR as a part of an

interrogation for a switching or supporting node address. In step 215, the HLR retrieves the

address that corresponds to the subscriber identification number and also a corresponding

(second) hardware identification data. In step 217, this address data and hardware identification

data is returned to the message controller. A step 220 of further managing of the message

comprises in this embodiment the part steps 221 to 224. In step 221, the hardware identification

data received from the HLR and the application node, respectively, are compared. If the

hardware identification data, as decided in step 222 are correspondent data, the procedure

continues to step 224, where initiating of the transmission of the message according to the

address received from the HLR takes place. If it in step 222 is concluded that the hardware data

does not agree, the procedure continues to step 223, where an error handling procedure is performed. The procedure ends in step 299.

Please amend the paragraph beginning at page 15, line 1, as follows:

The embodiments described above are to be understood as a few illustrative examples ~~of the present invention~~. It will be understood by those skilled in the art that various modifications, combinations and changes may be made to the embodiments without departing from the scope of the ~~present invention~~ <u>appended claims</u>. In particular, different part solutions in the different embodiments can be combined in other configurations, where technically possible. The scope of the present invention is, however, defined by the appended claims.